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BOOK REVIEWS.

The Measurement of General Exchange-Value. By CORREA MOYLAN WALSH. New York: The Macmillan Company, 1901. 8vo, pp. xiv + 580. Price, \$3.00.

THE volume before us is a painstaking discussion of an abstruse topic on the border land of economics and mathematics. The author gives abundant evidence of familiarity with his subject. He has undertaken and successfully accomplished the task of analyzing the mathematical relations involved in the various problems of exchange. The apparent ease with which the author addresses himself to the subject inspires confidence in the expectation of profitable results. Given the circumstances of the movement of prices and the volume of business, and the *data* in each case are manipulated after the manner of an expert.

One may open this book almost at random, and read a minute analysis along some line naturally suggested in the process of the discussion. For instance, at the top of page 517 we have:

Between two figures (or variations), each taken singly (or in equal numbers), the geometric mean is the geometric mean between the arithmetic and the harmonic means. Hence also in these cases,

The geometric mean is smaller (lower) than the arithmetic, and greater (higher) than the harmonic.

With these figures each taken singly (or in equal numbers) or with two figures taken uneven times (so that we must employ uneven weighting), the first of these propositions does not hold good of the *averages* between them.

Turning now to page 531, we read:

It is plain that when a is becoming equal to b , it must pass through the mean between them, that is, it must fall first *to* the mean and then *from* the mean; and when b is becoming equal to a , it must pass through the mean between them, that is, it must rise first *to* the mean and then *from* the mean.

Therefore if the mean be the arithmetic, the approaches of a and b to this mean are harmonic variations . . . and their departures from it arithmetic variations.

If the mean be the harmonic, the approaches of a and b to this mean are arithmetic variations, and their departures *from* it are harmonic variations.

But if the mean be the geometric, both the approaches *to* it and the departures *from* it are geometric variations.

The great problem of measuring the average variation of prices in the actual market, that is, under conditions of miscellaneous or haphazard movement of prices and volume of business, the author has correctly found to be as yet unsolved. Only in case of proportional changes of the masses of commodities from period to period can this measure be accurately taken. He himself has not found a solution, but he expresses the conviction that the hope of such need not be regarded as chimerical. Indeed he suggests a direction which may possibly lead to a solution.

Our author does not attribute his failure to reach a solution of this problem to the fact that the desired average exists only in fancy—that the problem presents absurd conditions. He thinks the problem legitimate, and the failure due to deficiency of methods hitherto employed. This feature is discussed in section 4 of chapter XII. At page 408 he says :

It does not mean that in cases where the mass quantities and the prices irregularly vary, there is no one true variation of money in general exchange value; for if that were so, there could, in these most common cases, be no variation of money in general exchange value at all, which is absurd. What it means is that our mathematics, so far as yet carried in the subject of averaging, fail us.

The present writer ventures to remark that the problem as stated is absurd, and must be abandoned, so far as a precise measurement is concerned. To put the problem baldly, it requires that we find the variation in the exchange value of money in the case of two periods, one of which presents a traffic confined to cattle and money; the other confined to raw cotton and money. The reason that the problem is legitimate when the masses of commodities are all proportional at the various periods concerned, is that we have the same aggregate to consider. The total mass of commodities at the initial period, say, may be regarded as a unit. This identical unit taken a certain number of times (fractional or integral) is involved in the transactions of any other period; so that our problem reduces to a measurement of the variation in the price of one item from period to period. When the masses from period to period have no such “regularity,” the problem

reduces itself to the one cited above concerning cattle and raw cotton. Of course, this criticism, applied to an actual case, affects the possibility of precision only. If the quantities approach proportionality, we may essay an average, which will not profess to be precise, but which may serve all practical purposes.

The character of the subject has given the author's ingenuity and industry ample play to fill a rather ponderous volume with discussions mostly mathematical. It goes without saying that these discussions will be dry, even impossible, reading to many economists; but the subject has been thrashed over time and again, generally in a slovenly as well as inadequate manner, so that one may welcome with real pleasure so masterly and yet so simple a treatise as this before us.

Taking this volume as a criterion, one might infer that the author's bent of mind is mathematical rather than economical, but there are not wanting evidences of keenness of insight in the general domain of economics. A sample may be presented from pages 122, 123:

In the first place labor has no exchange value. Labor is not a possessible thing; it does not pass from one owner to another; it is not exchanged for anything else. What, it may be said, does not the employer pay money for labor, and does not the laborer get money for his labor? By no means. The essence of the contract between the manufacturer and his employees is that the former shall put materials and machines in the hands of the latter and shall take the products which they shall make—he buys from them the improvements they make, they sell to him those improvements. . . .

The products of labor for which we exchange money may be immaterial things—dramatic scenes, music, etc. (pleasurable sensations and thoughts), or states and conditions (safety, health, etc.). . . . We do not pay musicians for playing, but for music.

The writer does not endorse everything in the above passages, but he recognizes and approves the independence of thought exhibited. Space does not warrant a more detailed statement here.

A special feature of the book is the presentation and criticism of former efforts to probe the mysteries of mensuration of exchange value. This is well done and, to all appearances, exhaustively. Indeed one may accord the book abundant merit for diligence of research, facility of mathematical discussion, and independence of thinking. It is an important accession to the literature of economics.

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